# CS 255 Project One

### Purpose

*What is the purpose of this project? Who is the client and what do they want their system to be able to do?*

* Provide the client DriverPass, a competitive edge in the market of educational resources for driver’s education for students.
* The DriverPass system will need to provide students with web based online courses and practice tests to increase their chances of passing the drivers exam at their local DMV.
* The system must also track students’ progress, updated regularly to changes reflected at their local DMV, and give students the option to pursue “on-the-road” training if they wish.

### System Background

*What does DriverPass want the system to do? What is the problem they want to fix? What are the different components needed for this system?*

* The main problem that DriverPass noticed was a strong correlation in student drivers failing their driver exams and a lack in educational resources in training. Thus, DriverPass believes that the solution is to make educational resources and training available to students in a flexible manner that meets their demands and schedule.
* The system must be extremely flexible to clients demands and schedules implementing a registration system that finds the most convenient time for the client. The client will have the ability to register for courses, schedule on the road driver training, and be able to take practice tests.
* The client will also be able to have their own profile where they can track the status of their progress as they work through the education courses offered through DriverPass and the practice exams.
* Multiple accounts with different group permissions to provide a separation of duties for employees and a root account for the owner to track and monitor activity.
* The ability to view data online and export data to spreadsheets for offline purposes.
* Cloud services to manage storage solutions and provide layered security as a service.
* Web hosted services for clients to increase the availability of the system.
* Notification system that emails and provides phone calls of information of clients that have registered
* Modularized system that can easily be updated with new content.

### Objectives and Goals

*What should this system be able to do when it is completed? What measurable tasks need to be included in the system design to achieve this?*

* The system will need to be highly modularized as it can easily implement changes to reflect the changes made the local DMVs of the clients.
* The system will need to implement a registration system that tracks, monitors, and schedules online courses, practice tests, and hand on driving for clients.
* The system will provide users with various types of offers through packages, the more expensive the package, the more training and resources available to the user.
* The system must have a user account that gives users the ability to reset their passwords if needed, track their progress, and perform registration.
* Administrator accounts are needed for DriverPass employees to make modifications that the users cannot, such as refunds, or making necessary modifications for users, disable unnecessary packages, and update materials.
* Root account for owner to monitor the activity of administrator accounts, data, and download data for offline use.
* Notifications to be delivered when a registration event has occurred, providing specific information about the client via phone/email.

## Requirements

### Nonfunctional Requirements

*In this section, you will detail the different nonfunctional requirements for the DriverPass system. You will need to think about the different things that the system needs to function properly.*

#### Performance Requirements

*What environments (web-based, application, etc.) does this system need to run in? How fast should the system run? How often should the system be updated?*

* The environment of this system will be web-based, and application based as it shall be hosted via cloud through a third-party cloud service provider.
* The system will need to be lightweight and highly reliable as users will need to access the content from anywhere at any time.
* The system should be frequently updated to meet compliance regulations.

#### Platform Constraints

*What platforms (Windows, Unix, etc.) should the system run on? Does the back end require any tools, such as a database, to support this application?*

* The system will run in a multi-platform environment in such that it will be hosted using a cloud server. Thus, the system will be web based and can be utilized on Windows, Max, Linux, Unix, and mobile operating systems.
* The system will need a database to support this application as it will need to store user’s and their information. As well as provide information of courses, who is registered, what courses are complete, student progress, invoicing, students who have graduated the program, etc.
* The database will be hosted through the cloud service and will need to be linked with the interface to create easy implementation of changes.

#### Accuracy and Precision

*How will you distinguish between different users?* *Is the input case-sensitive? When should the system inform the admin of a problem?*

* The system must have role-based access to allow user to only access specific content.
* The input of passwords must be case-sensitive to increase complexity of password strength to prevent unauthorized access.
* The system must inform a admin of a problem as soon as detected so that it can be corrected quickly.

#### Adaptability

*Can you make changes to the user (add/remove/modify) without changing code? How will the system adapt to platform updates? What type of access does the IT admin need?*

* Changes need to be easily updated and shall not modify existing code.
* The admin will make updates to the interface by changing values in the database to make quick easy updates.
* The IT admin will need to be able to add, remove, or modify content to keep up with compliance as it is quickly changing and adapting.
* System owner and IT admin will need to be able to modify and disable accounts and former employees/students to enhance security.

#### Security

*What is required for the user to log in? How can you secure the connection or the data exchange between the client and the server? What should happen to the account if there is a “brute force” hacking attempt? What happens if the user forgets their password?*

* Cyber security shall be provided and maintained by third-party cloud service providers; thus security shall be reinforced to protect the server and the PII of users.
* The system will allow users the ability to reset their passwords.
* The system will allow the owner full access to modify usernames and passwords.
* A strong password policy will be implemented, such as providing account lock outs after a specified number of attempts, password history in such passwords cannot be reused with a short time frame, and passwords complexity in which passwords will be of appropriate length and use of characters and symbols.

### Functional Requirements

*Using the information from the scenario, think about the different functions the system needs to provide. Each of your bullets should start with “The system shall . . .” For example, one functional requirement might be, “The system shall validate user credentials when logging in.”*

* The system shall authenticate and authorize users upon logging in with credentials.
* The system shall create and send notifications upon completion of events.
* The system shall provide three “Driver Packages”.
* The system shall track student progress.
* The system shall provide role-based access to specific content.
* The system shall create registrations or make modifications upon user request.
* The system shall provide students with access to courses and exams.
* The system shall allow students to transfer files, such as a dropbox.
* The system shall allow users to communicate through IM functions.
* The system shall provide content manageability by allowing employees to update and modify content.
* The system shall perform data analysis and automatically generate reports.
* The system shall allow reports to be exported into excel worksheets.
* The system shall monitor user activity and log it.

### User Interface

*What are the needs of the interface? Who are the different users for this interface? What will each user need to be able to do through the interface? How will the user interact with the interface (mobile, browser, etc.)?*

* The UI design needs to be scalable from mobile devices, applications, and web browsers on desktops as it will be hosted through a client-server pattern.
* The UI needs to be user centric as there are multiple users are needed to interact with the interface.
* Employees need to be able to make modifications to reservations and make updates to packages on the fly.
* Students need to be able to schedule reservations, track progress, and participate in online courses/exams.

### Assumptions

*What things were not specifically addressed in your design above? What assumptions are you making in your design about the users or the technology they have?*

* It is assumed that the budget of the project is included in the cost for the system and all resources one needs are available.
* It is assumed that the client already has put in though about choosing a cloud provider.
* It is assumed that the client already has the hardware/networking technologies to run the system.
* It is assumed that deliverables will be delivered in promised times according to the chart and the Gnatt chart.

### Limitations

*Any system you build will naturally have limitations. What limitations do you see in your system design? What limitations do you have as far as resources, time, budget, or technology?*

* The system has limited availability in the sense that it relies on being hosted through a third-party cloud service provider.
* The system has limited security in the sense that its security is relied on through a third-party cloud service provider.
* The system has little margin for error as budget was not specified and there is such a small-time frame of when this system needs to be built (five-months).
* The allocation of employees is limited in respect to the demands of the project in the given scope.

### Gantt Chart

*Please include a screenshot of the GANTT chart that you created with Lucidchart. Be sure to check that it meets the plan described by the characters in the interview.*

*Chart

Description automatically generated*